AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1.   (Currently Amended) A method for classifying defects using a defect review apparatus, comprising:

obtaining an image of a defect on a sample using one of an electron type image detector and an optical image detector;

extracting a characteristic of the defect from the image using a characteristic extractor; and

classifying the defect in accordance with the extracted characteristic, and based on a rule-based classification and a learning type classification,

wherein the step of classifying further comprises:

calculating a set of first likelihoods of the defect belonging to each of a plurality of defect classes of the rule-based classification, by use of the extracted characteristic using a likelihood function;

calculating a set of second likelihoods of the defect belonging to each of a plurality of defect classes of the learning type classification, by use of the extracted characteristic;

calculating a third set of likelihoods of the defect belonging to each of the defect classes of the learning type classification and/or the defect classes of the rule-based classification, by use of the first and second likelihoods; and

classifying the defect by use of the third likelihoods; and

wherein the rule-based classification and learning type classification are present in a parallel relationship with each other and independent of each other.

2.	(Previously Presented)	The method for classifying defects according to Claim 1, wherein the image is an SEM image.

3.	(Previously Presented)	The method for classifying defects according to Claim 1, wherein the defect image is obtained while the sample is positioned in accordance with position coordinate data of the defects on the sample.

4.	(Previously Presented)	The method for classifying defects according to Claim 1, wherein the plurality of classes of the rule-based classification are selected from class sets displayed on a display screen.

5.	(Previously Presented)	The method for classifying defects according to Claim 1, wherein the third likelihoods are calculated of by using a classification model comprising a relation of the classes of the learning type classification and the classes of the rule-based classification.

6.	(Previously Presented)	The method for classifying defects according to Claim 5, further comprising:

generating a plurality of classification models;

determining a likelihood of the adequacy of each classification model; and

deciding a class likelihood according to the determined model likelihood.

7 – 25.	(Cancelled).

26.   (Currently Amended)   An apparatus for classifying defects, comprising:

an imager which obtains an image of a defect on a sample;

a characteristic extractor which extracts a characteristic of the defect from the image;

a classifier which classifies the defect in accordance with the extracted characteristic, and based on a rule-based classification and a learning type classification, and

a display for displaying the image of the defect and the classification result on a screen;

wherein said classifying means comprises:

a rule-based classifier which calculates a set of first likelihoods of the defect belonging to each of ~~plurality~~ a plurality of rule classes by use of the characteristics of the defect using a likelihood function,

a learning type classifier which calculates a set of second likelihoods of the defect belonging to each of a plurality of defect classes by use of the characteristic of the defect; and

a calculator which calculates a set of third likelihoods of the defect belonging to each of said defect classes and/or rule classes, by use of the first and second likelihoods, and

a classifier which classifies the defects by use of the calculated third likelihoods; and

wherein the rule-based classification and learning type classification are present in a parallel relationship with each other and independent of each other.

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27.   (Previously Presented)   The apparatus according to Claim 26, wherein said display is adapted for displaying a plurality of class sets on the screen, for selection of said rule classes.

28.   (Previously Presented)   The apparatus according to Claim 26, wherein the classifying means includes a computing section for calculating a likelihood of the adequacy of each of a plurality of classification models and classifies the defects by using said likelihood of the adequacy of the classification models.

29.   (Previously Presented)   The apparatus according to Claim 28, wherein the classifying means further includes a computing section for calculating said third likelihood and a model likelihood of the adequacy of the individual classification models to decide a class likelihood according to the model likelihood.